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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,874	08/06/2003	Babak Habibi	B4450014	7619
720	7590	09/14/2005	EXAMINER	
OYEN, WIGGS, GREEN & MUTALA LLP 480 - THE STATION 601 WEST CORDOVA STREET VANCOUVER, BC V6B 1G1 CANADA			MARC, MCDIEUNEL	
			ART UNIT	PAPER NUMBER
			3661	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/634,874

Applicant(s)

HABIBI ET AL.

Examiner

McDieunel Marc

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 33-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) all is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

1. Claims 33-61 are pending.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 33-61 are rejected under 35 U.S.C. 102(b) as being anticipated by **Wei et al.** (*Multisensory Visual servoing by a Neural Network*, 1999).

As per claims 33-61, **Wei et al.**, teaches a multisensory visual servoing by a neural network, including a system and an associated method that is useful in three-dimensional pose estimation for use with a single camera mounted to a movable portion of a robot (see fig. 1), the method comprising:

capturing a number of images of a calibration object by the camera (see figs. 2-3);

determining a set of intrinsic parameters of the camera from at least one of the number of images of the calibration object captured by the camera (see fig. 2); and

determining a set of extrinsic parameters of the camera from at least one of the

number of images of the calibration object captured by the camera, the set of extrinsic parameters comprising a camera space-to-training space transformation design a transformation between a camera space reference frame and a training space reference frame (see fig. 2). With respect to claim 53, an apparatus useful in robotics as described above, the apparatus comprising:

a single camera operable to capture at a number of images of a calibration object by the camera (see fig. 2);

means for calibrating the camera, by determining a set of intrinsic parameters of the camera from at least one of the number of images of the calibration object captured by the camera (see fig. 4, wherein tracking being considered as calibrating); and

determining a set of extrinsic parameters of the camera from at least one of the number of images of the calibration object captured by the camera, the set of extrinsic parameters comprising a camera space-to-training space transformation defining a transformation between a camera space reference frame and a training space reference frame (see fig. 2); and

means for estimating a pose of a target object, by capturing a two-dimensional image of an volume containing a target object (see fig. 4); and

locating at least six features in the captured image of the target object (see page 276, col. 2, section II., wherein features being considered as input dimension); and

determining an object space-to-camera space transformation based at least in part on a position of at least some of the located features using an algorithm that employs a known or determinable physical relationship between at least some of the

located features (see fig. 2). With respect to claim 58, an apparatus useful in robotics as described above, the apparatus comprising:

determining an object space-to-camera space transformation based at least in part on a position of at least some of the located features using an algorithm that employs a known or determinable physical relationship between at least some of the located features (see entire document).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to McDieunel Marc whose telephone number is (571) 272-6964. The examiner can normally be reached on 6:30-5:00 Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
McDieunel Marc  
Saturday, September 10, 2005